

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES E. HALL AND
DAVID M. ROGGMAN

Appeal No. 95-4036
Application 08/137,332¹

ON BRIEF

Before SOFOCLEOUS, METZ, and HANLON, Administrative Patent
Judges.

HANLON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the

¹ Application for patent filed October 18, 1993.
According to applicants, the application is a continuation-in-
part of Application 07/995,118, filed December 22, 1992.

final rejection of claims 1-20, all of the claims in the application. The subject matter on appeal relates to a continuous, non-aqueous dispersion polymerization process for producing a copolymer comprising a vinyl aromatic monomer and a conjugated diene monomer. Claim 1 is representative of the subject matter on appeal and reads as follows:

1. A continuous process to produce a copolymer by a non-aqueous dispersion polymerization process comprising the steps of:

(a) continuously adding to a first polymerization reactor via feed streams: a first monomer charge containing 75 to 100 percent by weight of a first conjugated diene monomer and 0 to 25 percent by weight of a first vinyl aromatic monomer, an organolithium polymerization initiator and a dispersing medium and polymerizing the monomer charge to form a first block of a dispersing agent soluble in the dispersing medium;

(b) continuously adding to a second polymerization reactor via feed streams containing the dispersing medium; the first block of the dispersing agent prepared in step (a), a second monomer charge containing 35 to 70 percent by weight of a second vinyl aromatic monomer and 30 to 65 percent by weight of a second conjugated diene monomer, and a catalytically effective amount of the organolithium polymerization initiator and polymerizing the second monomer charge to simultaneously form:

(i) a second block of the dispersing agent, the second block being insoluble in the dispersing medium and linking with the first block to form the dispersing agent, and

(ii) a product copolymer comprising 35 to 70 percent by weight of the second vinyl aromatic monomer and 30 to 65 percent by weight of the second conjugated diene monomer,

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wherein the dispersing agent disperses the product copolymer in the dispersing medium; and

(c) continuously recovering the dispersed product copolymer and the dispersing agent from the second polymerization reactor.

The prior art relied upon by the examiner is:

Markle et al. (Markle)	4,098,980	Jul. 4, 1978
Gunesin et al. (Gunesin)	4,829,135	May 9, 1989

The sole issue in this appeal is whether claims 1-20 were properly rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Markle and Gunesin.

The claimed invention

The claims relate to a continuous, non-aqueous dispersion polymerization process for producing a copolymer. The process of claim 1 comprises the following steps:

(a) continuously adding to a first polymerization reactor: (1) a first monomer charge containing a first conjugated diene monomer and a first vinyl aromatic monomer, (2) an organolithium polymerization initiator and (3) a dispersing medium, and polymerizing the monomer charge to form a first block of a dispersing agent soluble in the dispersing medium;

(b) continuously adding to a second polymerization

reactor containing the dispersing medium: (1) the first block of the dispersing agent prepared in step (a), (2) a second monomer charge containing a second vinyl aromatic monomer and a second conjugated diene monomer, and (3) an organolithium polymerization initiator, and polymerizing the second monomer charge to form:

(i) a second block of the dispersing agent, the second block being insoluble in the dispersing medium and linking with the first block to form the dispersing agent, and

(ii) a product copolymer comprising the second vinyl aromatic monomer and the second conjugated diene monomer; and

(c) continuously recovering the product copolymer and the dispersing agent from the second polymerization reactor. Claim 12 recites a process for preparing a styrene-butadiene copolymer which comprises essentially the same steps as claim 1.

Discussion

Claims 1-20 are rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Markle and Gunesin. We reverse this rejection.

Markle discloses a process for the non-aqueous dispersion polymerization of a conjugated diolefin monomer, such as butadiene (Abstract). In the process disclosed in Markle, a block copolymer dispersing agent is prepared in a separate process and thereafter added to the polymerization mixture (see Examples 1-33; col. 29, lines 30-48). Gunesin discloses a multi-stage process for homopolymerizing anionically polymerizable vinyl aromatic monomers, such as styrene (col. 1, lines 59-62). The polymeric dispersing agent used in the process disclosed in Gunesin is "advantageously a block copolymer" (col. 2, lines 19-26). However, Gunesin fails to disclose whether the dispersing agent is prepared in a process separate from the disclosed homopolymerization process or is prepared in situ.

According to the examiner (Answer, p.3):

The only difference seen between these two patents and the instantly claimed process is that the Markle patent teaches the polymerization of the conjugated diolefin and Gunesin teaches the polymerization of styrene. The instantly claimed process is directed to the preparation of a copolymer which contains 35 to 70% of styrene and 30 to 65% of the conjugated diene monomer. The Examiner maintains however that given the fact that both of the cited references teach dispersion polymerization in the presence of the block copolymer dispersion stabilizer, then it

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would be prima facie obvious to utilize the styrene monomers of Gunesin in combination with the butadiene monomers of Markle and copolymerize them together as instantly claimed.

We disagree. Neither Gunesin nor Markle disclose or suggest a continuous dispersion polymerization process for producing the copolymers of appellants' claimed invention (Brief, p.7).

Without the benefit of appellants' disclosure there would have been no motivation to combine the teachings of Gunesin and Markle. See In re Bond, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990) citing Carella v. Starlight Archery and Pro Line Co., 804 F.2d 135, 140, 231 USPQ 644, 647 (Fed. Cir. 1986) ("[o]bviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination"); In re Gorman, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991) (in a determination under 35 U.S.C. § 103 it is impermissible to simply engage in a hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill the gaps; the references themselves must provide some teaching whereby the applicant's combination

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would have been obvious).

Moreover, Markle fails to disclose or suggest producing the dispersing agent in situ. Although Gunesin is silent as to the process for producing the dispersing agent, appellants characterize the dispersing agent in Gunesin as "pre-made" (Brief, p.5). The examiner does not dispute this characterization (Answer, pp.3-4):

Appellants' primary point of contention with the rejection is that the instantly claimed method is intended to formulate the dispersing agent in situ and appellants point out that the prior art teaches a preformed dispersing agent. This is not persuasive There remains no showing or allegation of unexpected results with respect to formulating the dispersion stabilizer in situ as opposed to adding it in a preformed manner.

The examiner has improperly shifted the burden to appellants. The examiner bears the initial burden of presenting a prima facie case of unpatentability. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). We agree with appellants that the examiner has failed to satisfy that burden.

REVERSED

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Administrative Patent Judge)	
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ANDREW H. METZ)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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